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PROGRAM INFORMATION BULLETIN NO. P05-01

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SUBJECT: Final Effective Date for Underground Coal Diesel Particulate Standard and Availability of Report on Issues related to High Temperature Diesel Particulate Filters (HTDPFs) Including Laboratory Results on Kindling Temperatures

Who needs this information?

This Program Information Bulletin (PIB) affects underground coal mine operators using diesel-powered equipment, manufacturers of diesel-powered mining equipment used in underground coal mines (including manufacturers of exhaust aftertreatment control devices and systems), miners' representatives, and Mine Safety and Health Administration (MSHA) personnel.

Why is MSHA issuing this bulletin?

MSHA is issuing this bulletin to provide information concerning the January 19, 2005 effective date for the final phase of the underground coal diesel particulate standard, and the availability of MSHA's *Report on Issues related to High Temperature Diesel Particulate Filters Including Laboratory Results on Kindling Temperatures*.

What will happen on January 19, 2005?

The final phase of the underground coal diesel particulate standard, 30 CFR Part 72.501(c), will become effective. On January 19, 2005, each piece of nonpermissible heavy-duty, diesel-powered equipment, generator, or compressor operated in an underground area of an underground coal mine must emit no more than 2.5 grams per hour of diesel particulate matter (DPM). DPM controls must be evaluated to determine if the current controls provide sufficient collection efficiency to meet this requirement. Several engines produce a level of DPM that will require cooling the engine exhaust in order to achieve sufficient collection efficiency to meet the 2.5 grams per hour requirement.

MSHA will issue a citation for failure to implement DPM controls under 30 CFR 72.501(c) if appropriate aftertreatment devices are not installed on or after January 19, 2005. This citation will require the mine operator to submit a compliance implementation schedule to the local District Manager. In establishing or extending an abatement period, the District Manager will consider whether the failure to install an aftertreatment device was due to: (1) non-availability from the engine manufacturer or exhaust aftertreatment device manufacturer, (2) a documented design problem, or (3) non-availability of an exhaust gas temperature profile for selecting an aftertreatment device. The mine operator's good faith efforts to install an effective aftertreatment device to meet the DPM emission requirements, as evidenced by purchase orders with delivery dates, will be considered in the abatement process.

What additional information is available related to HTDPFs?

MSHA notified the mining industry of a potential fire hazard associated with HTDPFs in PIB No. P04-17 dated July 20, 2004. Since that time, MSHA has released the *Report on Issues related to High Temperature Diesel Particulate Filters Including the Laboratory Results on Kindling Temperatures*. Potential hazards of glowing, sparking, and heating of the material collected on the filter media were reported on generators, air compressors, skid loaders, and tow vehicles. MSHA's PIB No. P04-17 stated that these events might be related to the HTDPFs' exposure to exhaust gas temperatures exceeding 650 degrees Fahrenheit (650˚F) and filter overload. MSHA's report is now available and laboratory tests have confirmed that 650˚F is the maximum temperature to which HTDPFs can be safely exposed.

In order to determine the kindling temperatures of HTDPFs, MSHA performed extensive small scale and large scale laboratory tests. The small scale tests were run using small samples of HTDPF media loaded with DPM, with and without hydrocarbons added (simulated engine oil or fuel). Full scale tests were performed utilizing a diesel engine and 28 "used" HTDPFs provided by several mine operators that represented both currently accepted filters.

The laboratory tests confirmed that the filter media is not combusting; however, the DPM collected and stored in the HTDPF combined with un-burnt diesel fuel and lubrication oils present on the filter media can begin to kindle when exposed to excessive exhaust gas temperatures. MSHA's report and the test data are available on MSHA's web page at http://www.msha.gov/01-995/Coal/DPM-FilterEfflist.pdf.

What maintenance procedures are necessary for HTDPFs?

The proper maintenance of the diesel engine is critical to minimizing the problems associated with the use of HTDPFs. Proper maintenance maximizes the efficiency of any DPM collection device. To ensure the diesel engine is operating properly:

- Operate at the appropriate fuel setting;
- Maintain the engine so that no oil is exhausted;
- Do not exceed the backpressure limit;

- Maintain exhaust gases within established parameters; and
- Ensure that all gauges and safety switches operate properly.

Other DPM controls should be considered when exhaust gas temperatures exceed 650˚F. These additional controls may include ceramic diesel particulate traps. The operator may also elect to include a means to reduce the diesel exhaust temperature, such as a scrubber or heat exchanger, in order to maintain the exhaust gas temperature within the established limits.

Where can I find more information?

More information on diesel exhaust filters can be obtained from MSHA's Diesel Particulate Rules Single Source Page (http://www.msha.gov/01-995/dieselpart.HTM) and National Institute for Occupational Safety and Health's (NIOSH's) Mining Safety and Health Research Topics (http://www.cdc.gov/niosh/mining).

What is the background for this bulletin?

MSHA's diesel particulate rules for underground coal mines established new requirements for DPM over a phased-in schedule. This bulletin alerts coal miners and coal mine operators to the January 19, 2005 effective date of 30 CFR Section 72.501(c). MSHA provides recommendations for assisting mine operators in choosing the correct diesel particulate filter for their specific machine application. MSHA's *Report on Issues related to High Temperature Diesel Particulate Filters Including Laboratory Results on Kindling Temperatures* is now available on the MSHA web page at http://www.msha.gov/01-995/Coal/DPM-FilterEfflist.pdf.

Is this program information bulletin on the Internet?

This bulletin may be viewed on the World Wide Web by accessing the MSHA home page (http://www.msha.gov) and choosing "Compliance Info" and "Program Information Bulletins."

Who are the contact persons for this bulletin?

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What is the authority for this bulletin?
30 CFR Part 72 Subparts D and 30 CFR Part 75 Subpart T.

Who will receive this bulletin?
Program Policy Manual Holders
Miners' Representatives
Underground Coal Mine Operators
Special Interest Groups